Application No. 09/462,506
Amendment Dated August 8, 2003
Reply to Final Office Action of March 31, 2003

REMARKS/ARGUMENTS

By this Amendment, Claims 12-21 and 26 are pending. Claims 12, 21 and 26 are currently amended, with Claim 12 being independent. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Claims 1-11 and 22-25 are cancelled as directed to non-elected claims in response to a Restriction Requirement. Applicant reserves the right to file a divisional application for the non-elected claims.

Unless otherwise stipulated, the amendments were made to correct editorial errors and clear up matters of form. In particular, Claims 12 and 26 include amendments made to clear up matters of form indicated by the Examiner in the Office Action.

FORMAL MATTERS

Claims 12-21 and 26 stand rejected under 35 U.S.C. §112, second paragraph. This rejection is respectfully traversed for at least the reasons set forth below.

In Claim 12, the Examiner asserts that the meaning of "self-sealing fabric entry and exit openings"is unclear or ambiguous, because it is unclear as written if openings are merely for the fabric, or if the sealing means constitutes fabric. The Examiner also asserts that the term "continuously subjecting" is indefinite, and might be intended to mean that the plasma is not pulsed. These assertions are respectfully traversed.

Applicant has removed the term "self-sealing fabric entry and exit openings" from Claim 12, however, Applicant submits that the phrase is clear. In the preferred embodiment, the plasma

treatment takes place in an atmosphere of helium gas, and the seal may occur with the fabric passing through a plasma chamber, especially when the chamber has a very slight over pressure within the unit. In addition, there may also be some additional adjustable seal on the fabric or the chamber to close down the opening (*e.g.*, to take into consideration fabrics having different calibers). Accordingly, Applicant submits that the term is not unclear.

In addition, the term "continuously subjecting" is a standard industry term used to describe the fact that the fabric is being treated as it moves in a continuous path through a plasma machine. This method is substantially different than a batch process, which is the traditional method whereby whatever required fabric is placed into a chamber, enclosed, treated and then removed. Therefore, the term does not mean that the fabric is never removed from the plasma, nor does the term mean that the plasma is not pulsed. In fact, Applicant emphasizes that the term continuously subjected is not the opposite of using pulsed plasma. Withdrawal of the rejection of the claims under 35 U.S.C. §112 is respectfully requested.

Regarding Claim 26, the Examiner asserts that the members of the Markush group are unclear and appear to overlap. Applicant respectfully submits that the claim does not recite that the features "sintered felts, coated papermaking fabrics, non-woven and films, spiral link structures, membrane and polymer matrix material" are not required to be mutually exclusive and thus can overlap within the scop of the claim. The recitation of the fabric including one of the above identified features does not limit the scope to only one of the features, but may read on the fabric

including at least one of the features. Therefore the claim is not to be considered a Markush group claim. Withdrawal of the rejection of the claims is respectfully requested.

PRIOR ART REJECTIONS

Claims 12, 15, 18-21 and 26 stand rejected under 35 U.S.C. §103(a) over Kusano et al. Claims 12-15, 19 and 26 stand rejected under 35 U.S.C. §102(b) over Paskalov ('576). Claims 12-21 and 26 stand rejected under 35 U.S.C. §103(a) over Reiner et al. Claims 12-15, 18-19 and 26 stand rejected under 35 U.S.C. §103(a) over Milding et al. Claims 12-14 and 26 stand rejected under 35 U.S.C. §103(a) over Komatsu et al. Claims 12, 13 and 26 stand rejected under 35 U.S.C. §103(a) over Jeffrey et al. Claims 12, 13, 15, 16 and 26 stand rejected under 35 U.S.C. §103(a) over Hirotsu. Claims 12, 13, 15-17, 19 and 26 stand rejected under 35 U.S.C. §103(a) over Normura. Claims 12, 13, 15, 16, 18, 19 and 26 stand rejected under 35 U.S.C. §103(a) over Yamamoto et al. These rejections are respectfully traversed for at least the reasons set forth below.

Applicant respectfully submits that none of the references disclose or teach a method for treating papermachine or filtration fabric having one of synthetic yarns and fibers in a continuous process, the method including feeding the fabric through a plasma chamber having a water free helium containing atmosphere, and subjecting at least one surface of the fabric to solvent free plasma treatment, the water free helium containing atmosphere having a pressure above ambient, as recited in amended independent Claim 12. Support for the water free helium containing atmosphere having a pressure above ambient is found in the disclosure at least at page 5, lines 2 and 3. No new matter is added by the amendments.

In general, with one exception, the references cited by the Examiner disclose batch processes that take place under vacuum. Batch processes are not continuous processes because the fabric is simply being placed into the plasma chamber and then removed at the end. There is no need for openings at either side of the chamber since the fabric is simply placed into the chamber, treated and removed. In a continuous process, as recited, the fabric is treated as it moves in a continuous path through the plasma machine. Only one of the cited references, Milding, discloses a continuous process. However, the continuous process in Milding takes place under vacuum, not at an atmosphere above ambient. The above references and their non-disclosure or lack of teaching of a subject matter of the claims will be discussed in greater detail below.

Kusano et al.

The Examiner asserts that Kusano's plasma treatments are continuous plasmas, not post plasmas. The Examiner also asserts that any entry/exit that does not leak is self-sealing. However, Kusano does not teach a continuous process including feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in independent Claim 12.

Applicant again emphasizes that the claimed continuous process is not the opposite of using pulse plasma. Instead of a continuous process, Kusano discloses a batch process, where there is no need for openings at either side of the chamber since the fabric is simply placed into the chamber and then removed at the end of the process. In addition, the batch process takes place under vacuum. Therefore, Kusano does not disclose feeding the fabric through a plasma chamber having a water

free helium containing atmosphere above ambient, as recited in Claim 12. Accordingly, Kusano does not render obvious the features recited in Claim 12, nor the features of Claims 15, 18-21 and 26, which depend from independent Claim 12. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) over Kusano is respectfully requested.

Paskalov et al. ('576)

The Examiner asserts that the plasma process of Paskalov is a continuous plasma, not a pulse plasma. The Examiner also asserts that the opening and closure of the chamber reads on the possible means for self-sealing. Applicant understands that the Examiner interprets the term continuous plasma as the opposite of a pulsed plasma. Accordingly, for clarity, Claim 12 is amended to recite that the method for treating papermachine or filtration fabric in a continuous process includes feeding the fabric through a plasma chamber. This feature is not met by Paskalov, which discloses a batch process, not a continuous process, as distinguished above.

Paskalvo's disclosure of a batch process does not teach a method of feeding fabric through a plasma chamber. Further, the batch plasma process taught in Paskalov is under pressure, and thus is not in an atmosphere having a pressure above ambient. Therefore, Paskalov does not teach feeding the fabric through a plasma chamber having a water free helium containing atmosphere at a pressure above ambient, as recited in Claim 12. Accordingly, Paskalov does not disclose the features recited in amended Claim 12 and thus does not anticipate the claim. Claims 13-15 and 19-26 depend from independent Claim 12 and are believed to be allowable over Paskalov for at least

the reasons set forth above. Withdrawal of the rejection of the claims under 35 U.S.C. §102(b) over Paskalov is respectfully requested.

Reiner et al.

The Examiner asserts that while Reiner does not disclose a solvent free or water free atmosphere, Reiner does not teach to use water or solvent in a treatment, and therefore satisfies the feature. The Examiner also asserts that the plasmas taught by Reiner are continuous and at low pressures. Moreover, the Examiner admits that the types of openings and their sealing means are not discussed, but asserts that self-sealing would have been obvious. These assertions are respectfully traversed.

Applicant respectfully submits that Reiner does not teach feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in independent Claim 12. Like the aforementioned references, Reiner teaches a batch plasma process, in which fabric is simply placed into a chamber, treated and then removed. That is, the continuous process recited by the claims is not a batch process. In a batch process, fabric is not fed through a plasma chamber, but is inserted into and removed from the chamber. In addition, Reiner does not teach a water free helium containing atmosphere. Moreover, as the Examiner asserts, the plasma taught by Reiner is at a low pressure, and not at a pressure above ambient. Therefore, for at least these reasons discussed above, Reiner does not disclose feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere

having a pressure above ambient, as recited in independent Claim 12. Accordingly, Reiner does not render obvious the subject matter recited in Claim 12. Claims 13-21 and 26 depend from independent Claim 12 and are believed to be allowable over Reiner for at least the reasons set forth above. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) over Reiner is respectfully requested.

Milding et al.

The Examiner asserts that Milding teaches that material is continuously fed through a vacuum chamber and continuously treated while it is passed through the vacuum chamber. In this regard, Milding is the only reference cited by the Examiner that discloses or teaches material that is continuously fed through a vacuum chamber and continuously treated. However, the continuous process taught by Milding takes place under vacuum, in a vacuum chamber. Therefore, Milding does not teach its process in a water free helium containing atmosphere having a pressure above ambient. Again, the plasma process in Milding is specifically provided at reduced pressure (*e.g.*, 0.7 mbar) and thus does not teach the features recited in independent Claim 12. Accordingly, Claim 12 is not rendered obvious by Milding. Claims 13-15, 18, 19 and 26 depend from independent Claim 12 and are also believed to be allowable for at least the reasons set forth above. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) over Milding is respectfully requested.

Komatsu et al.

The Examiner asserts that the plasma is a continuous plasma, and that while chamber closures are not discussed, the obviousness of self-sealing applies. As noted on page 2 of the Office Action, the Examiner has interpreted "continuously subjecting" as a plasma that is not pulsed.

However, Applicant respectfully submits that the continuous process, as amended, clarifies that the term continuously subjecting is a standard term used to describe the fact that the fabric is being treated as it moves in a continuous path through the plasma machine. That is, it is a substantially different process than a batch process, whereby a fabric is placed into a chamber, enclosed, treated, and then removed. Therefore, the term does not mean that you continuously subject the fabric to plasma and never remove it. Moreover, the term does not mean that the plasma is opposite of being pulsed.

In the continuous process, the recited fabric is fed through a plasma chamber. However, the plasma taught in Komatsu is a batch process, significantly different than the process recited in Claim 12 as discussed above. Moreover, the batch plasma process taught in Komatsu takes place under vacuum. Therefore, Komatsu does not teach feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in independent Claim 12. Therefore, Komatsu does not render obvious Claim 12. Claims 13, 14 and 26 depend from independent Claim 12 and are believed to be allowable over Komatsu for at least the reasons discussed above. Withdrawal of the rejection of the claims over Komatsu is respectfully requested.

Jeffrey et al.

The Examiner asserts that Jeffrey et al.'s plasma is a continuous plasma, and at 0.05 torr, sealing of the chamber would have been expected in order to maintain the low pressure. Applicant respectfully submits that the Examiner's interpretation of continuous plasma is inconsistent with the claims, specification and industry standard for a continuous process of feeding fabric through a plasma chamber.

Jeffrey teaches a batch plasma process, which is substantially different than the process recited in independent Claim 12, as discussed above. Moreover, Jeffrey teaches the process at a low pressure of 0.05 torr, and thus does not teach the process at an atmosphere having a pressure above ambient, as recited in amended Claim 12. Therefore, Jeffrey does not teach the features of feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in independent Claim 12. Accordingly, Claim 12 is not rendered obvious by the teaching of Jeffrey. Claims 13 and 26 depend from independent Claim 12 and are believed to be allowable over Jeffrey for at least the reasons discussed above. Withdrawal of the rejection of the claims over Jeffrey is respectfully requested.

Hirotsu

The Examiner assumes that Hirotsu's plasma is constant because it is not pulsed. This rejection is respectfully traversed for reasons discussed in detail above. In short, the recited process is substantially different than a batch process. In addition, the continuous process is not the opposite of a pulsed process.

In the claimed continuous process, the fabric is treated as it moves in a continuous path through a plasma machine. In contradistinction, in the batch plasma process taught in Hirotsu, the fabric is placed into a chamber, enclosed, treated and then removed. This process is substantially different than the process of feeding fabric through a plasma chamber as recited in independent Claim 12. Accordingly, Hirotsu does not teach this claimed feature. In addition, as asserted by the Examiner, the system taught in Hirotsu is under pressure and one would have expected sealed openings. However, the atmosphere of the claimed plasma chamber has a pressure above ambient, which is the opposite pressure of the vacuum taught by Hirotsu. Therefore, Hirotsu does not teach feeding plasma through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in Claim 12. Accordingly, Hirotsu does not render obvious Claim 12. Claims 13, 15, 16 and 26 depend from independent Claim 12 and are also believed to be allowable over Hirotsu for at least the reasons discussed above. Withdrawal of the rejection of the claims under 35 U.S. §103(a) over Hirotsu is respectfully requested.

Nomura

The Examiner asserts that Nomura teaches the use of neither water nor solvents in their plasma, which is a continuous plasma. The Examiner also asserts that while not discussing input and output openings, Nomura shows that spools must be input in one chamber and output in another, and the system is under vacuum and hence must be sealed to maintain that taught vacuum. The Examiner's assertions in comparison to the claims are respectfully traversed.

Applicant again submits that the Examiner's interpretation of continuous plasma does not apply to the claims, as a continuous process is not the opposite of a pulsed plasma process. The batch plasma process taught in Nomura shows the inputting and outputting of spools in a batch process where the fabric is placed into the chamber, enclosed, treated and then removed. As discussed above, this process is substantially different than the continuous process of feeding fabric through a plasma chamber as recited in independent Claim 12. Since Nomura does not disclose this feature of feeding fabric through a plasma chamber, Nomura does not render obvious Claim 12.

In addition, as asserted by the Examiner, the system taught in Nomura is under pressure and must be sealed to maintain the taught vacuum. However, the atmosphere of the claimed plasma chamber has a pressure above ambient, which is the opposite of the vacuum taught by Nomura. Accordingly, Nomura does not teach feeding fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in Claim 12. Therefore, Claim 12 is not rendered obvious by Nomura. Claims 13, 15-17, 19 and 26 depend from independent Claim 12 and are also believed to be allowable over Nomura for at least the reasons discussed above. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) over Nomura is respectfully requested.

Yamamoto et al.

The Examiner asserts that Yamamoto teaches no use of H_20 or solvent in their constant plasma which is made under vacuum, but also does not disclose input/output openings for the substrates. Applicant respectfully submits that the input/output openings of Yamamoto are not

discussed nor need to be discussed because Yamamoto teaches a batch plasma process made under vacuum, as taught by most of the reference discussed above. Applicant also notes that the Examiner's interpretation of constant plasma is inconsistent with the term constant process as it is applied in the claims, specification and in industry. Since Yamamoto teaches a batch process, which as discussed above is substantially different than the continuous process recited in Claim 12, Yamamoto does not teach the feature of feeding the fabric through a plasma chamber.

Moreover, the batch plasma process taught in Yamamoto is under vacuum, while the recited method is in an atmosphere having a pressure above ambient. Therefore, Yamamoto does not teach this feature. Accordingly, Yamamoto does not teach the features of feeding the fabric through a plasma chamber having a water free helium containing atmosphere, the atmosphere having a pressure above ambient, as recited in independent Claim 12. Therefore, Yamamoto does not render obvious Claim 12. Claims 13, 15, 16, 18, 19 and 26 depend from independent Claim 12 and are also believed to be allowable over Yamamoto for at least the reasons discussed above. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) over Yamamoto is respectfully requested.

CONCLUSION

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

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Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN,
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Please charge or credit our Account No. 03-0075 as necessary to effect entry and/or ensure consideration of this submission.